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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,778	05/03/2001	Peter A. Beerel	06666-077001/USC3027	6633

20985 7590 01/05/2004

FISH & RICHARDSON, PC  
12390 EL CAMINO REAL  
SAN DIEGO, CA 92130-2081

EXAMINER

TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/848,778

Applicant(s)

BEEREL ET AL.

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-90 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-90 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Oath/Declaration***

No Oath or Declaration was provided for the Application.

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-19 and 36-90, drawn to SISO decoding with a Tree Structure for Iteratively Computing Forward and Backward Metrics, classified in class 714, subclass 794.
- II. Claims 20-26, drawn to SISO decoding with Fusion Modules for Computing Forward and Backward Metrics using a specific Matrix equation for Minimum Sequence Metrics, classified in class 714, subclass 796.
- III. Claims 27-35, drawn to SISO decoding Using Complete Fusion Modules, Backward Fusion Modules and Forward Fusion Modules classified in class 714, subclass 794.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group II, SISO decoding with Fusion Modules for Computing Forward and Backward Metrics using a specific Matrix equation for Minimum Sequence Metrics, and Group I, SISO decoding with a Tree Structure for Iteratively Computing Forward and Backward Metrics, are related as combination and subcombination. Inventions in

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this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination, Group II SISO decoding with Fusion Modules for Computing Forward and Backward Metrics using a specific Matrix equation for Minimum Sequence Metrics, as claimed does not require the particulars of the subcombination, Group I SISO decoding with a Tree Structure for Iteratively Computing Forward and Backward Metrics, as claimed because a sequential algorithm rather than an iterative algorithm could be used for calculating backward and forward metrics. The subcombination has separate utility such as for use in SISO decoders with backward and forward metrics not requiring the use of the specific Matrix equation of Group II for Minimum Sequence Metrics.

Inventions Group III, SISO decoding Using Complete Fusion Modules, Backward Fusion Modules and Forward Fusion Modules, and Group I, SISO decoding with a Tree Structure for Iteratively Computing Forward and Backward Metrics, are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination, Group III SISO decoding Using Complete Fusion Modules, Backward Fusion Modules and Forward Fusion Modules, as claimed does not require the particulars of the subcombination, Group I SISO decoding with a Tree Structure for

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Iteratively Computing Forward and Backward Metrics, as claimed because a sequential algorithm rather than an iterative algorithm could be used for calculating backward and forward metrics. The subcombination has separate utility such as in SISO decoders with backward and forward metrics not requiring the use of a Complete Fusion Module.

Inventions Group III, SISO decoding Using Complete Fusion Modules, Backward Fusion Modules and Forward Fusion Modules, and Group II, SISO decoding for Fusion Modules for Computing Forward and Backward Metrics using a specific Matrix equation for Minimum Sequence Metrics, are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination, Group III SISO decoding Using Complete Fusion Modules, Backward Fusion Modules and Forward Fusion Modules, as claimed does not require the particulars of the subcombination, Group II SISO decoding for Fusion Modules for Computing Forward and Backward Metrics using a specific Matrix equation for Minimum Sequence Metrics, as claimed because the fusion modules could be based on another calculating means other than the specific Matrix equation for Minimum Sequence Metrics of Group II. The subcombination has separate utility such as in SISO decoders with backward and forward metrics not requiring the use of a Complete Fusion Module.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group III, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group I, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group III, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

A telephone call was made to Joseph Juliano on 17 December 2003 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

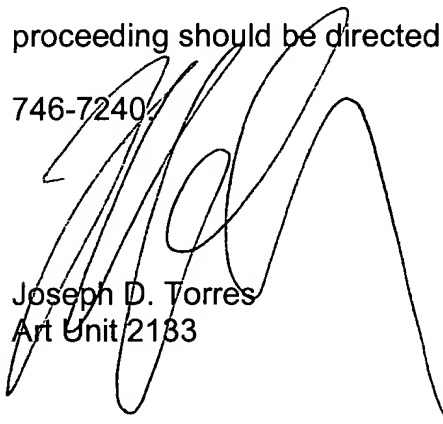
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-746-7240.



Joseph D. Torres  
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<b>Examiner-Initiated Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/848,778	BEEREL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Joseph D. Torres	2133	

**All Participants:**

(1) Joseph D. Torres.

(2) Joseph Juliano.

**Status of Application:** \_\_\_\_\_

(3) \_\_\_\_\_.

(4) \_\_\_\_\_.

**Date of Interview:** 17 December 2003

**Time:** 1:00pm

**Type of Interview:**

- ☒ Telephonic  
☐ Video Conference  
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☒ No  
 If Yes, provide a brief description: N/A.

**Part I.**

Rejection(s) discussed:  
 N/A

Claims discussed:  
 N/A

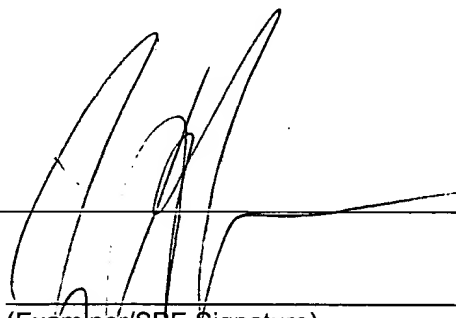
Prior art documents discussed:  
 N/A

**Part II.**
**SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:**

*The Attorney declined to elect over the phone.*

**Part III.**

- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.  
☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.



(Examiner/SPE Signature)

(Applicant/Applicant's Representative Signature – if appropriate)